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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,098	04/07/2004	Falgun D. Patel	10030458-1	8269

57299 7590 12/19/2006
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EXAMINER	
HUGHES, DEANDRA M	
ART UNIT	**PAPER NUMBER**
3663	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/19/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/820,098	PATEL ET AL.	
	Examiner	Art Unit	
	Deandra M. Hughes	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *13-20* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims1-12 have been considered but are moot in view of the new ground(s) of rejection. However, the Examiner is relying on the same prior art as her grounds of rejection. In the interest of compact prosecution, the arguments are addressed below.

Applicant argues the following:

(A) "There is no suggestion in the Varner patent that the fiber optic telecommunication system act as an optical switch..." (pg. 6, lines 11-12);

(B) "The Varner patent lacks an optical pump source operable to produce an optical pump in an ON state and no optical pump in an OFF state." (pg. 6, lines 13-14);

(C) "The Applicant's respectfully assert that the LaBorde patent fails to suggest the core being doped with at least one species of rare earth ion in the range of 5 to 75% as recited in claims 2 and 7, because the LaBorde patent concludes glasses doped with amounts of erbium greater than 3 weight % tend to quench, that is undergo a condition which greatly reduces the excited-state lifetime." (pg. 8, lines 4-8).

Argument (A) is unpersuasive because Applicant has not claimed a switching element. Since all of the structural limitations, as claimed (see rejection below), are met by the prior art, the Examiner has reason to believe the prior art structure can act as an optical switch. While features of an apparatus may be recited either structurally or

functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. See MPEP 2114.

Argument (B) is unpersuasive because in order to make a pump operate in an ON state, one of ordinary skill in the art merely has to turn the pump OFF. Conversely, to make a pump operate in an OFF state, one of ordinary skill in the art merely has to turn the pump OFF.

Argument (C) is unpersuasive because the prior art explicitly discloses the claimed range and the claim has not been amended so that the prior art teaches away from the claim, i.e. claim language pertaining to quenching is not present.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3, 6-8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varner (US 6,603,909 filed Nov. 5, 2001) in view of Becker et al. (Erbium-Doped Fiber Amplifiers and Technology, 1999).

With regard to claim 1, Varner discloses an optical element, comprising:

- a loss element having a signal loss (e.g. fig. 9c, section of #950 between #990 and #960);
- and a rare earth doped gain element (e.g., section of #950 between #960 and #930) in response to an optical pump (col. 8, lines 10-15); optically connected in series with the loss element (the 1st section of #950 and the 2nd section of #950 are serially connected);

- an optical pump source (#910) operably connected to the rare earth doped gain element, the optical pump source operable to produce the optical pump in an ON state (by turning the pump ON) and no optical pump in an OFF state (by turning the pump OFF);
- the rare earth doped gain element (col. 5, line 10; Erbium is a rare-earth) operable to produce a signal gain (amplifiers impart gain).

Varner does not specifically disclose that the signal gain and the signal loss are about equal. As it is well-known in the art, Becker teaches gain control of an EDFA via pump power control (e.g. see fig. 6.3). It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made to adjust the pump power of the Varner's pump (#910) so that signal gain equals signal loss for the advantage compensating for signal attenuation thereby ensuring reception at the receiver.

With regard to claim 6, the loss element (#950) is a Er-doped waveguide.

Claims 2-3, 7-8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varner (US 6,603,909 filed Nov. 5, 2001) in view of Becker et al. (Erbium-Doped Fiber Amplifiers and Technology, 1999) as applied to claim 1 above, and further in view of LaBorde (US 5,475,528 published Dec. 12, 1995).

With regard to claims 2-3 and 8, Varner in view of Becker does not specifically disclose doping the core with at least 5 wt% of erbium. However, this is well known in the art, as is taught by LaBorde (e.g. see Abstract). It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made

to dope the gain element with at least 5 wt% of erbium for the advantage of increasing pump power conversion.

With regard to claim 7, rare earth doped amplifiers inherently operate according to stimulated emission.

With regard to claim 12, the amplifying fiber of Varner (#950) can only impart gain to the signal via the pump signal. If the pump is not coupled to the amplifier, then it cannot impart gain. Consequently, the gain element is inherently in the on state when the pump power is coupled to the gain element.

4. Claims 4 and 9-10 rejected under 35 U.S.C. 103(a) as being unpatentable Varner (US 6,603,909 filed Nov. 5, 2001) in view of Becker et al. (Erbium-Doped Fiber Amplifiers and Technology, 1999) as applied to claim 1 above, and further in view of Hayden (US 6,430,349 published Aug. 6, 2002).

With regard to claims 4 and 9, Varner in view of Becker does not specifically disclose that the rare-earth ion comprises Er^{3+} and Yb^{3+} in the range of 5 to 75 wt%. However, Hayden teaches doping with Er^{3+} and Yb^{3+} in the range of 5 to 75 wt% (col. 4, lines 20-25). It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made to dope the fiber as is taught by Hayden for the advantage of optimizing the gain profile to the signal bandwidth.

With regard to claim 10, Varner in view of Becker does not specifically disclose doping the core with silver atoms. However, Hayden teaches doping the core with silver atoms (col. 5, line 1). It would have been obvious to one of ordinary skill (e.g., an

optical engineer) in the art at the time the invention was made to dope the core with silver for the advantage of a sensitizing agent.

5. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varner (US 6,603,909 filed Nov. 5, 2001) in view of Becker et al. (Erbium-Doped Fiber Amplifiers and Technology, 1999) as applied to claim 7 above, and further in view of Nilsson (US 2002/0030881 filed Aug. 7, 2001).

Varner in view of Becker does not specifically disclose that the cladding is doped with a rare earth ion. However, Nilsson teaches doping a cladding with a rare earth ion (paragraph [0040]). It would have been obvious to one of ordinary skill (e.g., an optical engineer) in the art at the time the invention was made to dope the cladding with a rare earth ion for the advantage of optimizing the gain profile to the signal bandwidth.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Deandra M Hughes
Primary Examiner
Art Unit 3663